REMARKS/ARGUMENTS

Claims 1-2 are active in this application.

The present invention relates to a chemical filter which comprises as an adsorption layer, an organic porous ion exchanger having a continuous pore structure comprising macropores and mesopores, the macropores being interconnected with each other forming mesopores with an average diameter of 5 to 1,000 μm in the interconnected parts, and having a total pore volume of 1 to 50 ml/g, uniformly distributed ion exchange groups, and an ion exchange capacity of 3.0 mg eq./g or more on dry basis. Applicants have found that such chemical filter provides surprising benefits in absorption capability, such as absorption of ammonia, as compared to other conventional types of materials as absorption layers in chemical filters.

The claims stand rejected under 35 U.S.C. 103 over Koji in view of Kazuo. As noted in the present specification, Koji discloses an organic porous ion exchanger having a continuous pore structure comprising macropores and mesopores (the macropores being interconnected with each other forming mesopores with an average diameter of 1 to 1,000 μm in the interconnected parts), and having a total pore volume of 1 to 50 ml/g, uniformly distributed ion exchange groups, and an ion exchange capacity of 0.5 mg eq./g or more on a dry basis, a deionizing module with the organic porous ion exchanger filled in a space between two ion exchange membranes, and a power-saving electrodeionization deionized water production unit equipped with the deionizing module. However, the Japanese Patent Application Laid-open No. 2002-306976 does not describe the use of the organic porous ion exchanger having a continuous pore structure as a chemical filter.

The Examiner has attempted to use Kazuo to overcome the deficiencies of Koji, on the basis that Kazuo teaches use of an ion exchanger as the absorption layer of a chemical filter. However, this combination of Koji and Kazuo fails for several reasons. First, contrary

to the Examiner's assertion, Koji and Kazuo are not both in the same area of deionizing water and humidity control. In fact, while Koji relates to deionizing water, Kazuo relates to gas purification. Further, while Kazuo discloses use of an ion exchanger as an adsorption layer of a chemical filter, the ion exchangers are in the form of woven or nonwoven fabrics, powders, etc.. Additionally, the exemplified ion exchangers of Kazuo are all non-woven or woven fabrics, which are aggregates of fibers.

The present inventors have found that the process efficiency of an ion exchange chemical filter can be remarkably increased by controlling the relative humidity of the environment at 20% or more. Kazuo gives no attention at all to the effect of easy humidity control and increased process efficiency by the use of a specific ion exchanger. Thus, Kazuo gives an ion exchanger that is quite different from the ion exchanger of the present invention as a preferable ion exchanger for use in the chemical filter.

Therefore, one of ordinary skill would have no reason to combine the teachings of Kazuo with Koji. Further, even if one were to combine the teachings of Koji and Kazuo there would be no expectation that one would obtain the exceptional improvements found by the present invention. For example, the specification of the present invention describes adsorption of ammonia using a monolith porous ion exchanger of the present invention (Example 1) and adsorption of ammonia using a cation exchange fiber of nonwoven fabric similar to that of Kazuo (Comparative Example 2). While ammonia could be completely removed (to less than 50 ng/m^3) in Example 1, the ammonia removal was incomplete (80 ng/m^3) in Comparative Example 2. The examples indicate that the "porous ion exchanger having a continuous pore structure comprising macropores and mesopores (the macropores being interconnected with each other forming mesopores with an average diameter of 1 to 1000 prn in the interconnected parts), and having a total pore volume of 1 to 50 ml/g, uniformly distributed ion exchange groups, and an ion exchange capacity of 0.5 mg Eq/g or

more on dry basis" provides significantly better performance as an adsorber than a non-woven ion exchanger such as that which Kazuo claims to be particularly suitable. The above-described improvements provided by the present invention are nowhere disclosed or suggested by the cited references and would not be expected by one of ordinary skill in the art. Accordingly, any asserted case of obviousness has been adequately rebutted by the data in the present application and the rejection should be withdrawn.

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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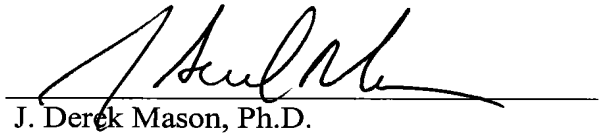

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